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10/635,723	08/07/2003	Toshihiro Ohtani	1095.1283	8870

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EXAMINER	
DIACOU, ARI M	

ART UNIT	PAPER NUMBER
3663	

DATE MAILED: 08/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/635,723	OHTANI ET AL.	
	Examiner	Art Unit	
	Ari M. Diacou	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) *31 and 32* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8-7-2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 31-32 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention Group I, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on August 9, 2005.

2. Applicant's election without traverse of embodiment C pointing to figure 21 on which claim 9 reads in the reply filed on August 9, 2005 is acknowledged.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. The italicized clauses are essentially method limitations or statements or intended or desired use and are being examined as if the apparatus were capable of performing the functions described in said clauses. Thus, these claims as well as other

statements of intended use do not serve to patentably distinguish the claimed structure over that of the reference. See In re Pearson, 181 USPQ 641; In re Yanush, 177 USPQ 705; In re Finsterwalder, 168 USPQ 530; In re Casey, 512 USPQ 235; In re Otto, 136 USPQ 458; Ex parte Masham, 2 USPQ 2nd 1647.

See MPEP § 2114 which states:

> A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ 2nd 1647
>
> Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than functions. In re Danly, 120 USPQ 528, 531.
>
> Apparatus claims cover what a device is not what a device does. Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

As set forth in MPEP § 2115, a recitation in a claim to the material or article worked upon does not serve to limit an apparatus claim.

6. The italicized statements of intended or field of use clauses provide language that suggests or makes optional but does not require steps to be performed or does not limit the scope of a claim or claim limitation (MPEP § 2106(II,C)). Accordingly, the metes and bound of the claim cannot be ascertained by one having ordinary skill in the art.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsuda et al. (USP No. 6,038,063).

Regarding claim 1, Tsuda discloses an optical transmission system which transports optical signals over an optical transmission line, comprising:

- an optical transmitter, comprising: [Fig. 1, #8] [Col. 3, lines 52-53]
    - an optical amplifier *that amplifies main signals, and* [Fig. 1, #14] [Col. 3, lines 59-61]
    - an optical amplifier controller that starts up said optical amplifier, *spending a first predetermined time to raise output power of said optical amplifier up to a desired level, in order to prevent an OSC signal from experiencing abrupt power variations; and* [Fig. 13, #38, #34, #36] [Col. 4, lines 28-43]
- an optical receiver, comprising: [Fig. 1, #18] [Col. 3, lines 65-67]
    - a pump light source that produces a pump beam *for injection to the fiber-optic transmission line so as to make the fiber-optic transmission line serve as an amplifying medium, and [Fig. 3, #48] [Col. 4, lines 44-59]*
    - a pump light source controller that starts up said pump light source, *spending a second predetermined time to raise the pump beam to a*

desired power level, in order to prevent the OSC signal from experiencing abrupt power variations. [Fig. 3, #50] [Col. 4, lines 60-66]

Regarding claim 2, Tsuda discloses The optical transmission system according to claim 1, further comprising a variable optical attenuator disposed before said optical *amplifier to vary input signal level thereof, wherein*: [Fig. 4, #52] [Col. 4, lines 23-50]

- said optical amplifier is controlled in both automatic level control (ALC) and automatic gain control (AGC) modes; [Fig. 1, #14] [Col. 3, lines 59-61]
- *said optical amplifier controller controls said optical amplifier in the ALC mode to raise the output power thereof from zero level;*
- *and after said optical amplifier has moved into the AGC mode*, said optical amplifier controller controls the input signal level of said optical amplifier *by varying attenuation level of said variable optical attenuator, thereby controlling the output power of said optical amplifier.*

Regarding claim 3, Tsuda discloses The optical transmission system according to claim 1, further comprising

- a variable optical attenuator disposed before said optical amplifier in said optical transmitter *to vary input signal level thereof*, [Fig. 4, #52] [Col. 4, lines 23-50]
- wherein: said optical amplifier is controlled in AGC mode; [Fig. 1, #14] [Col. 3, lines 59-61]

- *and said optical amplifier controller first sets a maximum attenuation level to said variable optical attenuator and then gradually reduces the attenuation level, thereby increasing the output power of said optical amplifier in a stepwise fashion.*

Regarding claim 5, Tsuda discloses the optical transmission system according to claim 1, wherein:

- said optical amplifier controller comprises a timer with a predetermined time constant *that is enabled when the optical transmission system starts to operate*; [Fig. 13, #38] [Col. 7, lines 21-42]

- *and said optical amplifier controller starts to raise the output power of said optical amplifier in a stepwise fashion after said timer has expired, whereby said optical amplifier starts up later than said pump light source.*

Regarding claim 6, Tsuda discloses the optical transmission system according to claim 1, wherein:

- *said optical transmitter sends a downstream OSC signal to said optical receiver to indicate that said optical amplifier controller has finished raising the output power of said optical amplifier;*

- *and said pump light source controller starts to raise the pump beam in a stepwise fashion upon receipt of the downstream OSC signal.*

Regarding claim 7, Tsuda discloses the optical transmission system according to claim 1, wherein:

- *said optical receiver sends an upstream OSC signal to said optical transmitter to indicate that said pump light source controller has finished raising the pump beam;*
- *and said optical amplifier controller starts to raise the output power of said optical amplifier in a stepwise fashion upon receipt of the upstream OSC signal.*

Regarding claim 8, Tsuda discloses the optical transmission system according to claim 1, *wherein said optical amplifier controller and said pump light source controller respectively start up said optical amplifier and said pump light source in an interactive way, communicating each other's ongoing process status by sending OSC signals back and forth.*

Regarding claim 9, Tsuda discloses The optical transmission system according to claim 1, wherein:

- said optical receiver comprises a monitoring controller *that watches at least one of main signal power and OSC signal power; [Fig. 13, #60] [Col. 8, lines 8-31]*
- *said optical receiver sends an upstream OSC signal to notify said optical transmitter of monitoring results of said monitoring controller;*

- *and based on the monitoring results received from said optical receiver, said optical amplifier controller calculates control step parameters for use in raising the output power of said optical amplifier in a stepwise fashion.*

Regarding claim 10, Tsuda discloses the optical transmission system according to claim 1, wherein:

- said optical receiver comprises a monitoring controller *that watches at least one of main signal power and OSC signal power; [Fig. 13, #60] [Col. 8, lines 8-31]*

- *and based on monitoring results of said monitoring controller, said pump light source controller calculates control step parameters for use in raising the pump beam in a stepwise fashion.*

Regarding claim 11, Tsuda discloses the optical transmission system according to claim 1, wherein said optical transmitter and said optical receiver each comprise a mask time setting unit *that defines and uses a mask time in checking incoming OSC signals in such a way that a substantial OSC error is detected only when OSC signal faults continue for a period longer than the mask time.*

Regarding claim 12, Tsuda discloses the optical transmission system according to claim 1, *wherein said optical amplifier controller calculates control step parameters from the desired level of said optical amplifier when raising the output power in a stepwise fashion.*

Regarding claim 14, Tsuda discloses the optical transmission system according to claim 1, *wherein said pump light source controller calculates control step parameters from the desired power level of the pump beam when raising the pump beam in a stepwise fashion.*

Regarding claim 16, Tsuda discloses an optical transmission system which transports optical signals between upstream and downstream stations over an optical transmission line, each station comprising:

- an optical amplifier *that amplifies main signals*; [Fig. 1, #14] [Col. 3, lines 59-61]
- an optical amplifier controller that starts up said optical transmitter, *spending a first predetermined time to raise output power of said optical amplifier up to a desired level, in order to prevent an OSC signal from experiencing abrupt power variations;* [Fig. 13, #38, #34, #36] [Col. 4, lines 28-43]
- a pump light source *that produces a pump beam for injection to the fiber-optic transmission line so as to make the fiber-optic transmission line serve as an amplifying medium*; [Fig. 3, #48] [Col. 4, lines 44-59]
- and a pump light source controller *that starts up said pump light source, spending a second predetermined time to raise the pump beam to a desired power level, in order to prevent the OSC signal from experiencing abrupt power variations.* [Fig. 3, #50] [Col. 4, lines 60-66]

Regarding claim 17, Tsuda discloses the optical transmission system according to claim 16, further comprising a variable optical attenuator disposed before said optical amplifier *to vary input signal level thereof*, wherein: [Fig. 4, #52] [Col. 4, lines 23-50]

- said optical amplifier is controlled in both ALC and AGC modes; [Fig. 1, #14] [Col. 3, lines 59-61]
- *said optical amplifier controller controls said optical amplifier in the ALC mode to raise the output power thereof from zero level;*
- *and after said optical amplifier has moved into the AGC mode, said optical amplifier controller controls the input signal level of said optical amplifier by varying attenuation level of said variable optical attenuator, thereby controlling the output power of said optical amplifier.*

Regarding claim 18, Tsuda discloses the optical transmission system according to claim 16, further comprising a variable optical attenuator disposed before said optical *amplifier to vary input signal level thereof*, wherein: [Fig. 4, #52] [Col. 4, lines 23-50]

- said optical amplifier is controlled in AGC mode; [Fig. 1, #14] [Col. 3, lines 59-61]
- *and said optical amplifier controller first sets a maximum attenuation level to said variable optical attenuator and then gradually reduces the attenuation level,*

thereby increasing the output power of said optical amplifier in a stepwise fashion.

Regarding claim 19, Tsuda discloses the optical transmission system according to claim 16, wherein:

- said pump light source controller comprises a timer with a predetermined time constant *that is enabled when the optical transmission system starts to operate; [Fig. 13, #38] [Col. 7, lines 21-42]*
- *and said pump light source controller starts to raise the pump beam in a stepwise fashion after said timer has expired, whereby said pump light source in the downstream station starts up later than said optical amplifier in the upstream station.*

Regarding claim 20, Tsuda discloses the optical transmission system according to claim 16, wherein:

- said optical amplifier controller comprises a timer with a predetermined time constant *that is enabled when the optical transmission system starts to operate; [Fig. 13, #38] [Col. 7, lines 21-42]*
- *and said optical amplifier controller starts to raise the output power of said optical amplifier in a stepwise fashion after said timer has expired, whereby said optical amplifier in one station starts up later than said pump light source in the other station.*

Regarding claim 21, Tsuda discloses the optical transmission system according to claim 16, wherein:

- *said optical amplifier controller in the upstream station sends a downstream OSC signal to the downstream station to indicate that said optical amplifier controller has finished raising the output power of said optical amplifier;*
- *and in the downstream station, said pump light source controller starts to raise the pump beam in a stepwise fashion upon receipt of the downstream OSC signal.*

Regarding claim 22, Tsuda discloses the optical transmission system according to claim 16, wherein:

- *said pump light source controller in the downstream station sends an upstream OSC signal to the upstream station to indicate that said pump light source controller has finished raising the pump beam;*
- *and in the upstream station, said optical amplifier controller starts to raise the output power of said optical amplifier in a stepwise fashion upon receipt of the upstream OSC signal.*

Regarding claim 23, Tsuda discloses the optical transmission system according to claim 16, *wherein said optical amplifier controller and said pump light source controller in the upstream and downstream stations respectively start up said optical*

amplifier and said pump light source in an interactive way, communicating each other's ongoing process status by sending OSC signals back and forth.

Regarding claim 24, Tsuda discloses the optical transmission system according to claim 16, wherein:

- *each station further comprises a monitoring controller that watches at least one of main signal power and OSC signal power;*
- *the downstream station sends an upstream OSC signal to notify the upstream station of monitoring results of said monitoring controller;*
- *and in the upstream station, said optical amplifier controller calculates control step parameters, based on the monitoring results received from the downstream station, for use in raising the output power of said optical amplifier in a stepwise fashion.*

Regarding claim 25, Tsuda discloses the optical transmission system according to claim 16, wherein:

- *each station further comprises a monitoring controller that watches at least one of main signal power and OSC signal power;*
- *and said pump light source controller calculates control step parameters, based on monitoring results provided by said monitoring controller, for use in raising the pump beam in a stepwise fashion.*

Regarding claim 26, Tsuda discloses the optical transmission system according to claim 16, wherein each station further comprises a mask time setting unit *that defines and uses a mask time in checking incoming OSC signals in such a way that a substantial OSC error is detected only when OSC signal faults continue for a period longer than the mask time. [Fig. 13, #60] [Col. 8, lines 8-31]*

Regarding claim 27, Tsuda discloses the optical transmission system according to claim 16, *wherein said optical amplifier controller calculates control step parameters from the desired level of said optical amplifier when raising the output power in a stepwise fashion.*

Regarding claim 29, Tsuda discloses the optical transmission system according to claim 16, *wherein said pump light source controller calculates control step parameters from the desired power level of the pump beam when raising the pump beam in a stepwise fashion.*

Regarding claim 13, Tsuda discloses the optical transmission system according to claim 1, wherein:

- said optical amplifier controller comprises a memory *that stores control step parameters to achieve the desired level of said optical amplifier;*
    - *It is known in the art that memory is an inherent component in a controller used in an optical amplifier. Without a memory device to store what the*

output intensity profile of the amplifier should be, it is impossible to construct an operational optical amplifier.

- *and said optical amplifier controller reads out the control step parameters from said memory when raising the output power of said optical amplifier in a stepwise fashion.*

Regarding claim 28, Tsuda discloses the optical transmission system according to claim 16, wherein:

- said optical amplifier controller comprises a memory *that stores control step parameters to achieve the desired level of said optical amplifier;*
    - *It is known in the art that memory is an inherent component in a controller used in an optical amplifier. Without a memory device to store what the output intensity profile of the amplifier should be, it is impossible to construct an operational optical amplifier.*
- *and said optical amplifier controller reads out the control step parameters from said memory when raising the output power of said optical amplifier in a stepwise fashion.*

Regarding claim 15, Tsuda discloses the optical transmission system according to claim 1, wherein:

- said pump light source controller comprises a memory *that stores control step parameters to achieve the desired power level of the pump beam;*

- *It is known in the art that memory is an inherent component in a controller used in an optical amplifier. Without a memory device to store what the output intensity profile of the amplifier should be, it is impossible to construct an operational optical amplifier.*

- *and said pump light source controller reads out the control step parameters from said memory when raising the pump beam in a stepwise fashion.*

Regarding claim 30, Tsuda discloses the optical transmission system according to claim 16, wherein:

- said pump light source controller comprises a memory *that stores control step parameters to achieve the desired power level of the pump beam;*

    - *It is known in the art that memory is an inherent component in a controller used in an optical amplifier. Without a memory device to store what the output intensity profile of the amplifier should be, it is impossible to construct an operational optical amplifier.*

- *and said pump light source controller reads out the control step parameters from said memory when raising the pump beam in a stepwise fashion.*

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. In the case that the inherency of a memory in an optical amplifier is traversed, claims 13, 15, 28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuda as applied to claims 1 and 16 above, and further in view of Wu et al. (USP No. 6,751,013). Tsuda discloses the optical amplifier with all the limitations of claim 1, but fails to teach the inherency of a memory device in an optical amplifier. Wu clarifies the necessity of a memory in operating control unit 34 of an AGC circuit in an optical

amplifier [Col. 4, lines 12-24]. Therefore, it would have been obvious to one skilled in the art (e.g. an optical engineer) at the time the invention was made, to construct an optical amplifier utilizing a memory, for the purpose of controlling gain profile.

Conclusion

13. The prior art which is cited but not relied upon is considered pertinent to applicant's disclosure.

14. While patent drawings are not drawn to scale, relationships clearly shown in the drawings of a reference patent cannot be disregarded in determining the patentability of claims. See In re Mraz, 59 CCPA 866, 455 F.2d 1069, 173 USPQ 25 (1972).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ari M. Diacou whose telephone number is (571) 272-5591. The examiner can normally be reached on Monday - Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AMD 8-16-2005

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